

REMARKS:

- 1) In view of the accompanying Request for Continued Examination (RCE), the Final Status of the Office Action of November 26, 2008 shall be withdrawn, and the examination shall be continued on the basis of the present amended claims and remarks.
- 2) This is a Statement of Substance of Interview. On March 23, 2009 the undersigned attorney conducted a Telephone Interview with the Examiner and the Examiner's Supervisor.

The undersigned attorney explained that the "pivot axis" recited in the claims is the same thing as the "rotation axis 4" in the written description. For clarity, it was agreed to amend the claims to recite the --rotation axis-- rather than "pivot axis" without any difference in the intended meaning, namely merely identifying an axis about which the control surface is pivotable.

The meaning of the claim term "wingtip edge" was also discussed and clarified, and it was agreed to make a corresponding clarifying amendment in claim 36.

The Examiner's interpretation of the direction or orientation of the pivot axis (rotation axis) as set forth in the second paragraph on page 5, and at the bottom of page 9 and the top of page 10 of the Office Action was traversed, and the proper intended meaning of the orientation of the pivot axis (rotation axis) was discussed in connection with drawing Figs. 1 to 5 and corresponding portions of the written description (see P5 L3-5, P6 L13-16, P11 L4-12, etc.).

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The patentable distinction of the invention of claim 36 relative to the prior art references (Klug and Whitaker, Sr.) was discussed (as set forth hereinbelow). The additional patentable distinctions of dependent claims 42 to 44 and 46 to 48 were also discussed (as set forth hereinbelow). The Examiner indicated that claims 42 and 43 seem to define features not disclosed by the references and would receive favorable consideration.

The Supervisor indicated that a Response along the lines as discussed in the interview would most likely involve new issues that would require further consideration, so that an RCE would be necessary.

This Response is now being filed in accordance with the Telephone Interview. The helpful guidance of the Examiner and the Examiner's Supervisor is appreciated.

3) The claims have been amended as follows.

The Preamble of all of the claims has been amended to recite an --aircraft wing arrangement-- rather than an "aircraft wing construction" to avoid any confusion as to the statutory category of invention being claimed. Namely claim 36 is directed to an apparatus or machine arrangement, and is not directed to a method or process.

All of the claims have also been amended wherever necessary to change "pivot axis" to --rotation axis-- in conformance with the specification (page 5 line 4, page 6 line 13, page 11 line 6, etc.).

Independent claim 36 has been amended to incorporate features from prior claim 43 to cover especially the embodiments

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of Figs. 2 and 4. Claim 36 has also been amended to clarify the intended meaning of the "wingtip edge", for example with reference to Figs. 1 to 4 and the specification at page 6 lines 7 to 9 and 17 to 20, and page 13 lines 1 and 2. It is further submitted that a person of ordinary skill in the art has a general understanding that a lifting wing of an aircraft is bounded by a leading edge, a trailing edge, and an outboard wingtip edge that extends from the leading edge to the trailing edge.

Claims 42 and 43 have been canceled.

New claims 51 to 55 have been added. The new claims are supported by the original disclosure as shown in the following table and do not introduce any new matter.

new claims	51	52	53	54	55
original support	Figs. 1 - 4; P 5 L 3-5; P 6 L 13-16; P 11 L 4-12	Cl 36, 46	Figs. 1 - 4; P 5 L 3-5; P 6 L 13-16; P 11 L 4-12	Fig. 9; P 15 L 1-2	Cl 47

Entry and consideration of the claim amendments and the new claims are respectfully requested.

- 4) Referring to pages 2 to 4 of the Office Action, in reply to the Restriction Requirement, applicant hereby elects the Group I apparatus claims directed to an aircraft wing arrangement. After the present amendments, claims 36 to 41 and 44 to 48 remain directed to the elected Group I apparatus invention, new claims 51 to 55 are also directed to the elected Group I, and non-elected method claims 49 and 50 remain withdrawn. However,

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because the non-elected method-of-use claims 49 and 50 depend from elected claim 36, the Examiner is respectfully requested to rejoin, consider and allow the dependent method-of-use claims in the event that the elected independent claim 36 is ultimately found allowable, in accordance with MPEP 821.04 and 2116.01.

- 5) Referring to the bottom half of page 4 of the Office Action, the objection to the preamble terminology of claims 36 to 48 has been addressed in the present amendment. The amended claim preamble "aircraft wing arrangement" is clearly directed to an aircraft wing structure or apparatus. Withdrawal of the objection is respectfully requested.
- 6) Referring to the top half of page 5 of the Office Action, the rejection of claims 36 to 48 as indefinite under 35 USC 112(2) has been addressed in the present amendment. The previous term "pivot axis" has been changed to --rotation axis-- for consistency with the written description. As shown in Figs. 1 to 4, and described in the above-cited portions of the specification referring to the "rotation axis", it should now be clearly understood that the claimed "rotation axis" is not perpendicular to the elastic axis as interpreted and assumed by the Examiner. It should be understood that Figs. 1 and 2 do not show two different pivoted positions of the same control surface in the same embodiment, but rather two different embodiments. Namely, Fig. 1 shows an embodiment with an adjustable auxiliary control surface 3a extending outward from the wingtip edge, and Fig. 2 shows an embodiment with a different adjustable auxiliary

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control surface 3b arranged inwardly from the wingtip edge. In other words, Figs. 1 and 2 do not show a "pivoting point of 3a ... being perpendicular to elastic axis" as asserted by the Examiner. There is no such pivot point or axis. Rather, the claimed "pivot axis" is the "rotation axis 4" as shown in the drawings and described in the specification. The claims and the written description are now clear and consistent in this regard. The interpretation proposed by the Examiner is thus excluded. For these reasons, please withdraw the indefiniteness rejection of the claims.

- 7) Referring to pages 5 to 7 of the Office Action, the rejection of claims 36 to 39, 43 and 45 to 48 as anticipated by US Patent 4,722,499 (Klug) is respectfully traversed.

Independent claim 36 has been amended to incorporate subject matter from prior claim 43. Claim 36 recites that the aircraft lifting wing is bounded by a leading edge, a trailing edge and a wingtip edge, wherein the wingtip edge is an outward end edge of the lifting wing extending from the leading edge to the trailing edge. Claim 36 further recites that the pivotable control surface is located inwardly from and does not extend outwardly beyond a line extending along the wingtip edge of the lifting wing. Thus, for example, claim 36 is now directed to the example embodiments shown in Figs. 2 and 4 of the drawings, and does not read on the example embodiments shown in Figs. 1 and 3 of the drawings because the control surfaces 3a and 3c of Figs. 1 and 3 extend outwardly beyond a line extending along the wingtip edge.

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In contrast to currently amended claim 36, Klug discloses an aircraft wing arrangement having auxiliary winglets or pivotable control surfaces (4, 5) that are located outwardly from and extend outwardly beyond a line (6) extending along the wingtip edge of the lifting wing (see Figs. 1, 3, 6). In the rejection of claim 43, the Examiner asserted that Klug discloses a control surface extending only inwardly from and not extending outwardly beyond a line extending along the wingtip edge of the lifting wing, whereby the Examiner referenced the line (1') as being a pertinent line extending along the wingtip edge. That assertion and interpretation of the reference is respectfully traversed as inaccurate. Namely, as shown in Fig. 2 and explained at col. 4 lines 40 to 44, the dash-dotted line (1') in Fig. 2 actually identifies the horizontal plane of the wing (1) and does not identify a line extending along the wingtip edge. Instead, and to the contrary, Klug explains that the aircraft wing (1) has an aerodynamically shaped boom (3) extending along the wingtip, whereby this boom (3) has an axis (6), which can be seen to extend along the wingtip edge (Figs. 1 and 3; col. 4 lines 5 to 7, 10 to 11 and 36 to 37). It is clearly evident that the auxiliary control surfaces or winglets (4, 5) are located outwardly from and extend outwardly beyond the wingtip edge, for example represented by the rotation axis (6) of the aerodynamic boom (3). Thus, the actual disclosures of Klug are directly contrary to currently amended claim 36.

For the above reasons, the invention of claim 36 is not anticipated by Klug, and also would not have been obvious because

the reference provides no disclosure toward a modification whereby the control surface would be located inwardly from and not extending outwardly beyond a line extending along the wingtip edge.

The claims depending from claim 36 are patentably distinguishable over the prior art already due to their dependence.

New independent claim 52 is based on a combination of features from prior claims 36 and 46. Although claim 46 was included in the group of claims rejected as anticipated by Klug, the rejection does not provide a specific discussion of claim 46, particularly that the control and/or regulation arrangement must include a measurement unit adapted to measure an actual elastic deformation of the lifting wing as now recited in new claim 52. At the bottom of page 6 of the Office Action, the Examiner merely states "*Furthermore, Klug's control arrangement (computer) is adapted to measure and store any signal received indicating deformation, and flight conditions*". That assertion is respectfully traversed as inapplicable against present claims 46 and 52. Namely, the control computer (38) disclosed by Klug receives signals from flight condition data inputs (44) and from gust sensors (45, 46). The flight condition sensors (44) sense instantaneous flight data, especially the speed and the location of the center of gravity of the aircraft, and the gust sensors (45, 46) indicate the loads on the right side and left side of the aircraft caused by wind gusts. Particularly, these gust sensors 45 and 46 are conventional acceleration sensors. See the disclosure of Klug at col. 6 lines 57 to 68 and col. 7 lines 17

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to 59. Klug does not disclose anything about a measurement unit adapted to measure an actual elastic deformation of the lifting wing for the control and/or regulation arrangement. Thus, the control and/or regulation arrangement according to Klug is significantly different from the presently claimed arrangement, because Klug aims for a control based on gust-caused accelerations, while the present invention provides a control and/or regulation based on the actual elastic deformation of the lifting wing as measured by the recited measurement unit.

For the above reasons, the invention of independent claim 52 is not anticipated by Klug, and also would not have been obvious because there is no disclosure toward the distinct features of the invention.

The claims depending from claim 52 are patentably distinguishable already due to their dependence.

For the above reasons, the Examiner is respectfully requested to withdraw the anticipation rejection applying Klug.

- 8) Referring to page 8 of the Office Action, the rejection of claims 36, 40 and 41 as anticipated by US Patent 4,455,004 (Whitaker, Sr.) is respectfully traversed.

It is noted that the Examiner also discusses this rejection "With regard to claims 36-41:", so that it is not clear whether claims 37 to 39 are also covered by this rejection. Nonetheless, this rejection did not apply against prior claim 43. Therefore, currently amended independent claim 36, which incorporates subject matter from prior claim 43, is not subject to this rejection.

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Particularly, currently amended independent claim 36 requires the control surface to be located inwardly from and not extending outwardly beyond a line that extends along the wingtip edge. Directly contrary thereto, the control surface (14) of Whitaker, Sr. is arranged outwardly from and extends outwardly beyond a line extending along the wingtip edge (e.g. represented by the fore-aft axis of the wingtip boom 13 as shown in Fig. 2). Thus, currently amended independent claim 36 and its dependent claims are not anticipated by Whitaker, Sr., and also would not have been obvious because the reference provides no disclosure toward the significantly different arrangement according to the invention.

New independent claim 52 is based on a combination of features from prior claims 36 and 46. Because claim 46 was not covered by this rejection, the rejection also does not apply against new independent claim 52. Whitaker, Sr. discloses a flight computer (19) and dynamic high load sensors (20) connected thereto. There is no disclosure of a control and/or regulation arrangement including a measurement unit arranged and adapted to measure the actual elastic deformation of the lifting wing. Thus, Whitaker, Sr. does not anticipate current independent claim 52. The invention of claim 52 also would not have been obvious because Whitaker, Sr. provides no indication toward such a control and/or regulation arrangement as presently claimed.

For the above reasons, the Examiner is respectfully requested to withdraw the anticipation rejection applying Whitaker, Sr.

- 9) Referring to page 9 of the Office Action, the rejection of claims 42 and 44 as obvious over Klug is respectfully traversed. The subject matter of prior claim 42 is similar to that of prior claim 43, which has been incorporated into currently amended claim 36. Claim 36 has been discussed above in comparison to Klug. That subject matter of currently amended claim 36 recites that the pivotable control surface is located inwardly from and does not extend outwardly beyond a line extending along the wingtip edge. The above discussion of claim 36 is pertinent here as well. The actual disclosure of Klug clearly shows that the pivotable control surfaces (4, 5) are located and extend outwardly beyond a line (6) extending along the wingtip edge. The wingtip edge is an outward end edge of the lifting wing extending from the leading edge to the trailing edge, and thus has nothing to do with the horizontal plane (1') of the wing (1) shown in Fig. 2 of Klug as asserted by the Examiner. Because the arrangement of Klug absolutely requires the winglets or control surfaces to extend outwardly beyond the wing, and there is no disclosure or enablement of arranging a control surface inwardly from the wingtip edge so that it does not extend outwardly beyond the wingtip edge, a person of ordinary skill in the art would not have found the presently claimed arrangement obvious. For these reasons, the Examiner is respectfully requested to withdraw the obviousness rejection applying Klug.

- 10) Favorable reconsideration and allowance of the application, including all present claims 36 to 41 and 44 to 55, are respectfully requested.

Respectfully submitted,

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Enclosures:
Transmittal Cover Sheet
Request for Continued Examination
Term Extension Request
Form PTO-2038

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CERTIFICATE OF FAX TRANSMISSION:

I hereby certify that this correspondence with all indicated enclosures is being transmitted by telefax to (571) 273-8300 on the date indicated below, and is addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

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